

MAY 1989

PIKES PEAK RADIO AMATEUR ASSOCIATION, INC.

P.O. Box 16521 Colorado Springs, CO 80935

FIRST CLASS MAIL





O BEAT



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ZERO BEAT is published monthly in the interest of the members of the Pikes Peak Radio Amateur Association, Inc., P.O. Box 16521, Colorado Springs, credit is given. Deadline for submission of articles is the 21st of the month. Classifieds accepted anytime.

The Pikes Peak Radio Amateur Association meets on the second Wednesday of each month at the Hewlett-Packard facility, at the intersection of Lexington and Union, at 7:30 p.m. All amateurs and interested parties are invited to attend.

Editor: Keith Goobie NY, 61, 5335 Coneflower Ln., Colorado Springs, CO 80917 637-1525

A Note From the Outgoing Editor (Keith NYOT)

Like Phil Somers (VE1ARC) before me, I too am being reputriated back to Canada as part of my on-going career in the Canadian Air Force. I will leaving the area on 15 Jul 89 for a new assignment in Kingston, Ontario where I will be working at the Canadian Forces School of Communications and Electronics. The 15th, being a Saturday, implies that I will leave after having breakfast at the Village Inn with the gang.

To say the least, I will certainly miss the area for a variety of reasons. Apart from all the friends that I have made through my involvement in the Club (and computers), this area has so much going for it, namely skiing, white water rafting and the local activities just to name a few. Of all the moves that I have ever had to make in my career, this will certainly be the hardest to pull up my roots from.

As I said earlier, I will not forget the friends that I have made through my involvement in the Club. To echo the sentiments of Phil (VE1ARC), the editor before me, there is no finer way to get to know the members of the Club than by being the newsletter editor. It implies that you attend many of the functions and events (and in this case, no arm twisting was needed). As well, being the editor here was most enjoyable due to the fantastic support that I received during my term as editor of 0-Beat. This Club has as its membership, many enthusiasts, if not pioneers, in the different fields of amateur radio and as such soliciting articles was never a major burden.

In addition, I am very proud of the Club membership for the way in which they supported the newsletter. The main reason is that I seldom had to resort to outside articles to fill the pages of the newsletter. It is nice to have a home-grown newsletter that captures the feelings and sentiments of the membership.

As such, I would like to single out a couple of people for their support. Probably my most dedicated supporter would be George, NSCIX in Woodland Park, He has grown with me as I took the newsletter into the electronic world and I am sure there were times that he threw his hands into the air as I was telling him how to get his articles to me electronically. George - Thanks!

(continued on page 9)

MONTHLY CLUB MEETING

The next regularly scheduled meeting of the Pikes Peak Radio Amateur Association will be held at the HewlettPackard facility at the intersection of Union and Lexington Boulevards. Detailed directions may be obtained from any Board member. Please note that the meeting time is at 7:00 pm (1900 hrs). This month's meeting will be on 10 May 1989.

This month the program is tentatively scheduled to be on the Strategic Defense Initiative.

MARC YOUR CALENDERS

The Mountain Ameteur Radio Club will meet on the 17th of May at 7:30 PM. The location will be the Teller County office building in Woodland Park.

Don't forget: the MARC campout/swapfest is July 22-23.

"THE VIEW FROM THE PEAK" by George Hinds, N8CIX

With summer on the way, and some over-the-road trips at hand, like many of you I'm going over the rigs in the car, tightening here, checking cable mas there, and making sure the antennas haven't loosened up from striking parking lot garage roofs nor the coax cut or pinched at critical points.

On a mobile installation, we try to avoid trouble in advance — but using a cigarette lighter socket as the power source is unquestionably the least professional method of obtaining power in an auto install; power from the fuse block is just one small step upward.

Take the molded wire that comes with the rig, strip it apart and twist the wires together; an easy way to cut the charce that the power cord will become an antenna for interference. Run both wires direct to the battery. Fuse both wires at the rig and again at the battery; should a short occur in the motor or fire- wall area, having fuses at the battery is a safety feature. (If the rig is left on, and the auto ground lead from battery to ground should break or be disconnected, you'll only lose a fuse - not perhaps the rig). If you've got more than one transceiver in the ear, run heavy (*10 twisted) wire from battery to a block inside the car, and then tap off that to each rig.

By this installation, you'll get rig power and ground from the battery; antenna ground from the body. Ignition control of power can easily be obtained with a relay in the line.

What about antenna placement on the car? There's just no place like this place: the center of the roof. Everything else being equal, center-roof is the choice of the pros. Frunk and hood mounting is definitely a compromise of efficiency. For 146, 220 and 440 rigs, a quarter-wave in the roof provides a practically omni-directional pattern and will be comparable to a 5/8ths placed elsewhere — and it clears most garage doors and parking garage roofs, too.

I've had a mobile rig in my cars since the mid-40's either police or amateur or both - and I've watched the results the pros get on an antenna test range: that "center of the roof" is it.

If you choose the rooftop, be sure to use a hole saw or drill that has a protective "stopping" flange -- with that, you won't tear into the inside liner when you drill through. If a magnet mount is all the little woman will allow on the family wheels, it's something to carefully put on and take off. Don't slide the mount around on the surface; you'll scratch it and doing so repeatedly will make it a sorry looking sight. If you put a thin sheet of plastic, etc., between mount and roof, fine dust will still work its way in there to scratch the surface. Pull the mount off, and put it on, by tipping it to the side and lifting straight up. Remember, too, that on some heavily padded roofs, a magnet mount can hardly be expected to work at peak efficiency and may even pull off at speed and really do a job on the car body while whipping around.

What about on glass mounting? Well, some folks feel it's a very satisfactory compromise mount to avoid a hole somewhere. My only experience was a good many years ago with an on-glass UHF antenna for 440-450MHz. Frankly, I wasn't impressed power transfer through the glass was acceptable for transmit; for receive it was measurably below my center of the roof hole mount job. Of course, working right in the vicinity of a repeater docsn't require the ultimate in efficiency, so it (on-glass) would then be satisfactory. Maybe improvements have been made??? One thing is sure: follow the tuning instructions carefully, or what looks like good VSWR on the meter will, in reality, be a large forward loss in the coupling.

A final point to consider: use at least 95% shielded coax on a mobile installation — it's not greatly more expensive and can make for better all-round performance.

AND ON ANOTHER SUBJECT ...

There are still many items remaining to be sold from the ham radio equipment of Walter Brown, KOUAB, a "Silent Key" of Woodland Park.

Such things as kit-built test equipment and phone patch, 10- channel Sears xtal scanner for Teller Co. P.S. frequencies, soldering irons, heavy duty antenna mobile mount spring, and an MFJ Versa-tuner II, Model 941.

All remaining equipment will be on the MARC table at the PPRAA swapfest for purchase; so, too, will tickets for the MARC Campout/Swapfest in the Pines at Red Recks Campground, 4 miles north of Woodland Park on Highway 67, July 22, 23.

- N8CIX

A NOTE FROM THE INCOMING EDITOR

The unique perspective of being editor is slowly becoming apparent to me. It leaves me with an appreciation of just how much work Keith has contributed to our club. If it is not so apparent to you, consider this: Keith is being replaced by not one, but four of us.

The current vice-president, Rick Kile, WB7THT, will take over as president when Keith leaves. I'm sure Rick will find 'riding herd' on such a diverse club as PPRAA is no easy task.

The "distribution editor" of 0-Beat will no longer be Keith. In the interim, Frank, NOIEM will take on the necessary task of delivering and picking up the newsletter from the printer. Since neither Frank nor I regularly get to breakfasts, though, the tradition of making 0-Beat available Saturday mornings may be interrupted. I'm sure the club will want to find someone that can not only take care of the printer, but also make the breakfasts to ensure prompt distribution.

Susan, KA?NNX, being my wife and better half, is helping with the pasteup. That gives me more time to fiddle with this dang computer.

Which brings me to the editor's job, which I am attempting to fill. To be sure, I am learning more than I ever cared to know about my word processor. I hope you bear with me for the learning curve is slow.

Some changes must occur. Differing hardware and software will force a new look to 0-Beat; different editors will inevitably give a different feel to it as well. I hope I eventually can do it half as well as Keith has.

You can help too. I will need contributors just as Keith did. You too, can be a 0-Beat contributor. Have you been on the air? Send in some operating news. Are you on a committee? Write an article on how you do the committee work. Have an opinion on how I'm doing? Send in a letter to the editor. You get the idea...

And in the meantime, say "thanks" to Keith.
- Oris NXOE

DITS AND BITS

O-Beat will allow amateurs to place fee non-commercial want-ucls of interest to local amateurs on a space available basis. O-Beat will attempt be insure accuracy in printing ads but cannot guarantee it.

FOR SALE:

Delhi 8 foor tower sections - \$30/section CDR TR-44 Rotor - \$50 Antenna: Mosley TA-33 beam - \$150 above are 12 years old but have only had 1 year use. Heath SB-200 Linear - \$350 Swan 270 Cygnet transceiver - \$200 Galaxy Console (incl. Phone patch and SWR) - \$50 Heath DX-60 with HR-10 and VF-1 VFO - make offer contact Don Sharkey VE4QQ phone 597-9322

WANTED:

Assistant editor for 0-Beat membership article solicitation. Must be at least 6'9" and 250 lb. See Chris.

FREE:

One used 12V car battery. Was still functional when replaced. Should be ideal for shack emergency PS for 12 Volt gear or mobile rigs. Call Chris NXOE at 495-0624



POWER SUPPLIES BY KD0SO

One of the things I like to do is build up low voltage circuits, for control functions. To do this I need one of two things: either a five volt power supply or an on-card regulation circuit. We almost always have the 12 volt DC circuit when we are messing with radios. So it's quite easy to just build up a regulator circuit on the card and use one common supply.

But what if you need to avoid taxing the existing supply in the system? Another consideration before we go too far, is the fact that there is always the need to have the system clean. In other words, protection from surges and spikes. Good engineering practices are always a key to longevity, of a system.

In example "a", I have approached the problem with this in mind. Now, as you can see the system is rated at one amp. We can change the devices some and get more power, should it be necessary. However, we will need to heat sink the regulator should we go beyond the one amp level. So keep this in mind when constructing.

One amp will take care of a lot of hardware, so you should find this circuit most applicable for any number of applications, running some of the black boxes used for rity, packet, etc.

Next month I will work up a heavy duty 12 volt system to run the shack radios. That's it for now.



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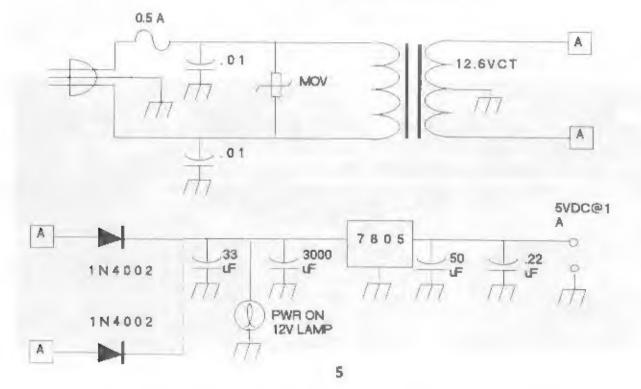
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73's from Paul KD0SO....

EXAMPLE A



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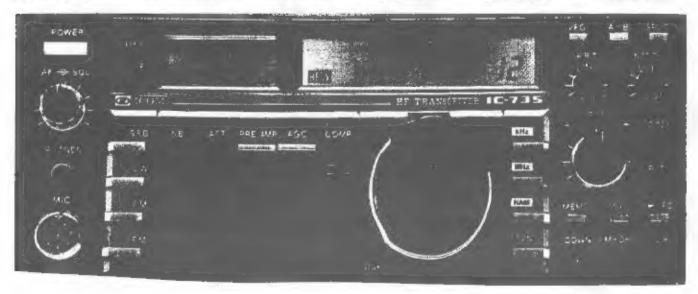
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Contact Al, MOCHIT for info or tables (719)473-1660 or send request for PADRox 19521 Codays, CO 89035

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AMATEUR RADIO LICENSE EXAMINATIONS

WHEN: Sat, 13 May 89 at 9:00 AM WHERE: Chapman College Flintridge and Academy Colorado Springs, CO WALKINS: Allowed TALK-IN: 146.37/97

NEEDED

1. Original FCC license, if any

2. A copy of your FCC license, if any

 Two forms of positive identification (driver's license, birth certificate, passport or library card)

4. \$4.75 check or M.O. payable to

ARRL/VEC

5. Completed PCC form 610

 If physically handicapped, a physicians certificate describing the nature of the disability. Arrangements should be made prior to testing

Sponsored by: PIKES PEAK RADIO AMATEUR ASSOCIATION

For more information contact:

SWAPFESTSCHEDULE

May 20, 1989, PPRAA Swapfest, Sponsored by the Pikes Peak Radio Amateur Association, Rustic Hills Shopping Centre, Colorado Springs, CO, Contact Al N&CMW 473-1660.

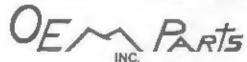
June 10, 1989, Superfest, Sponsored by the Northern Colorado ARC, Larimer County Fairgrounds, Loveland, CO, Contact N&DZA or W&ITD.

July 8/9, 1989, Wyoming Hamfest, Holiday Inn, Cheyenne, WY, Contact N7JJY.

July 16, 1989, Denver Radio Club Ultimate Swapfest, Sponsored by the DRC, Jefferson County Fairgrounds, Golden, CO, Contact WJ&G or Chauncey, N&HHE.

Sept 24, 1989, BARCFEST, Sponsored by the Boulder ARC, Boulder County Fairgrounds, Longmont, CO, Contact Dave WR6ZID.

Oct 7, 1989, ARRL Computer Networking Conference, Colorado Springs, CO, Air Force Academy, Contact Andy N&CCZ.



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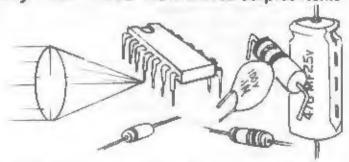
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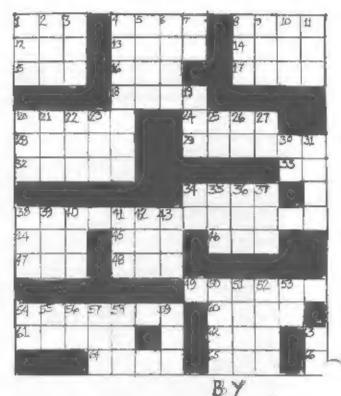
- I TV NETWORK
- 4 SELECTOR
- 8 RABIOS TIDE TORETHER
- 12 ENUCATIONAL TV
- 13 LAST ON TAPES
- 14 SCHEMATIC LOCS. for short
- 15 ABOUT (ABV)
- 16 NOT THE HOUR (ABV)
- 17 DELONGING TO ENGLISH MUSIC PRODUC. (INT)
- THE LEGISLATION CONTRACTOR THROUGHT A
- 70 COMMENT OF TO STEAM
- 29 POPULAR WIF RABIO MININ
- 28 CON SOUND??
- 29 DENISTS LOVE 178 USE
- 32 DEVICE WITH NO SHOKE LEFT
- 33 FINANCES SOME SCHOOLS (INT)
- 34 'OLD No DONALUS' RESIDENCE
- 38 LICENSED WITHOUT PECUIMARY INTERESTS.
- 44 SUM
- 45 COMSLINE
- 46 LEAVES NO SQUELCH TAIL (ABV) (INT)
- 47 "THE" BER.
- 48 I___THE DEC. |
- 49 LICENSE CLASS
- DA LICONDE CLASS
- 68 BIBITAL METERS for short
- 41 ALL THE PRIVELEGES
- 62 ELECTRONIC TECHS. for short
- **63 AUTHORS FIRST INITIAL**
- 64 TV TYPES OR VECHS, (INT)
- 65 FISH CATCHER OR RABID
- 66 LAST INITIAL OF AUTHOR

JOHN

- I CERTIFIED PUB ACCT. (INT)
- 2 BETTER BUSSINESS BUREAU (INT)
- 3 FAST PLANE
- 4 RADIO BRAND
- 5 C SHARP
- 6 "OVER THE HILL ELECT." (ENT)
- 7 DESREE TYPE (ABV)
- 8 MOD. MODE
- 9 ___ RESPOSEBLE
- 18 FIRST AND LAST NAME GNLY LYS? (ABV) (INT)
- \$1 KEEP SENDING SLOWER (ABV) (INT)
- 19 BUYS WHO LEAD RECURITS (1MT)
- 26 ENGLISH PLANE GRP. (INT)
- 21 "A HOT RABID" (INT)
- 22 CW FOR "DON"T MENTION IT" (INT)
- 23 "INTERNAL DRDER ERROR" (INT)
- 25 MOVICE MODE

DOME LEGISTA

- 26 COMPUTER BUSSINESS ENTRY (1907)
- 27 I
- 30 DISPLAYS LIVE VIDEO (INT)
- 31 DELONGS TO "UNCLE"
- 34 MUSICAL NOTE
- 35 FAST SCAN FOR HAMS (ABV)
- 36 ABRIVATED SOURCE
- 37 WETER READING ON TUBE TESTERS
- 3B RADIATION MESURMENT for whort
- 39 (INT) FOR ALFRED DEWEY ADAMS
- 49 DEFICIAL TITLE AFTER MANE. (SEE 29 ACCROSS)
- 41 FIRST PRODUCES IN BUSSINESS for short
- 42 AUTO INS. AND MAPS CO. (ENT)
- 43 TRANSPORTATION LE SCALE (INT)
- 49 (JNT) FOR "NO"
- 56 KEEPS CRYSTALS STABLE
- 51 FREEDON ETERCISE
- 52 INTERMED SURVEY TEST (INT)
- 53 HARLES MITH
- 54 ELECTRIC CO. (INF)
- 55 DIVORCED SPOURE (ABV)
- 56 IN OTHER WORDS A LIE (INT)
- 57 TIME PERIOD
- **58 CHEESE LOVER**
- 59 ABY FOR "CAN'T HEAR TRANS."



KDØSO

Next I would like to thank Paul KDOSO for all his articles on just about any subject you care to name. He has covered antennas to computers and could always be depended upon for his monthly contribution.

Ron NKOP was always there as well supporting me with his articles on VHF and UHF activity in the area and contesting. Jim WA9ABB was there in a pinch with his product reviews (just keep on buying Jim and send in your articles from Findlay).

I would also like to thank Chris NX0E for his articles on antennas, Max KD0EL for his updates on VE testing, Bob KBOCY for his product reviews and all the others. If I forgot to mention your name it was certainly not intentional. To all those I have named (and those that I have missed) my deepest gratitude.

Last, I would like to thank Chris NX0E for volunteering to be the new editor. Chris is enthusiastic about doing the job and I ask that you show him the support that you, the membership have shown me in the past.

Being the editor of 0-Beat is an experience that I will not quickly forget. It has been rewarding and I look forward to getting my copy of the newsletter when arrive in my new location, Maybe (you never know) | can write an article or two and call it View From Canuck Land...

Keith Goobie VEJPDD/NYOT

AFA RADIO CLUB MINUTES

The AFA Radio Club meeting was held [1 Apr 1989 at 1130 hrs at the rec center lunch area. Present were Floyd KBSFCN, Paylene KBSFTN, Doug NOHJT, and Al NOCMW. Jun WA9ABB was absent doing a house hunting trip in Findley, Ohio and Al NOCMW was away helping with a Ham Radio demonstration in Woodland Park. The club is investigating on what would be a good logo for the Club. An effort will be made to identify an area that can be used to set up a club station. Ron will head up an effort to identify other hams that are employed at AFA and see if they are interested in joining the Club. To support this effort Doug, NOHIT will see if he can get some articles in the Falcon Flyer. There being no further business, the meeting was adjourned at 1245 brs.

Respectfully submitted by AI NOCMW.

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MINUTES OF APRIL GENERAL MEETING

submitted by ALNOCMW, secretary

The general meeting of the Pikes Peak Radio Amateur Association was held at the Hewlett-Packard Briargate Facility, Wednesday evening 12 Apr 1988. The meeting was called to order by the president Keith NYOT at 19:00, and followed by the introduction of members and guests.

The minutes of the previous General Meeting and Board meeting were approved as printed in 0-Beat.

Committee Reports

Note: Anyone wishing to help out on any of these committees, please contact the chairman at the phone number listed. Thank you for your support.

Treasurer - Ron NK0P (593-8352):

Previous balance was \$1236.39, income of \$0245.00, expenses of \$0223.45, leaving a balance \$1257.94.

Interference - Ron NK0P (593-8352); Nothing to report.

Education - Dave N4DJS (531-0633);

Dave submitted his resignation at the club meeting citing increasing work commitments preventing him from doing the Education function properly. NOTE: We will need an education chairman if we are to keep our status as a Special Service Club.

Publicity - Karen NIFED (495-0091):

Karen took a straw vote as to how many people in having T-shirts made for the Field Day. She will provide a report at the next club meeting.

Colorado Council of Amateur Radio Clubs (CCARC) = Oak KOROL (635-2289):

The Club has purchased from the CCARC several FM and packet repeater maps. Cost has been set at \$1.00 each.

Deaf and Blind School - Jim WA9ABB (598-7543): Jim was not available as he was hunting in Findlay. Ohio. Jim will be leaving this summer and a replacement will be needed to take his position as well.

0-Beat - Keith NYOT (637-1525):

April will be the last issue for Keith (due to his move to Canada) and Chris NXOE will be the new editor of O-Beat.

ARES - Cliff KB0CVW (550-1447):

Meets overy Wednesday night on the 37/97 repeater (WOYNE) at 1830 hrs local.

Public Service - Mike KOTER (636-1290):

Mike spoke of several upcoming events that the PPRAA has been asked to support. FIRST, need 6 people each day for a Volksmarch at the Air Force Academy (May 6 & 7). SECOND, volunteers are needed for the March of Dimes on 21 May. THIRD, volunteers are also needed for another Volksmarch to be held at Fox Run Park on May 27. FOURTH, will need support for the Tripoli Rocket Society on 6,7 & 8 of August - will need 6 people in town and 9 at the site (11 Mile Resevoir). Please contact Mike if you would like to participate.

VE Testing - Max KD0EL (488-9289):

Next test will be May 13 at Chapman College, at the corner or Flintridge and Academy. Max expressed the importance of pre-registering early.



SWAPFEST - Rick WB7THT (599-7665):

PLEASE start turning in your money for the tickets that you have signed out. Also please contact Al-NOCMW (473-1660) if you would like a table.

Old Hustmest

The PPRAA Picnic will be held this year in conjunction with the Pikes Peak FM Association. Mike KOTER will our club liaison with the PPFMA. The picnic will be held on 6 Aug 89. If you would like to participate in the Club Field Day efforts, please contact Max KDOEL at 488-9289.

New Business

Dave NOION announced that the next severe weather class would be held on April 16th in the basement of the downtown. Police station.]

Darrell Hawley KB0DUQ has asked the Club membership for assistance in raising antennas. He can be reached at 634-1680.

Lauren KXOO gave a short update on the antenna/tower issue with the County Land Use Commission. He stated that the issue at present is stymied by the 1/2 mile issue and how to enforce it.

Frank NOFS stated that it could be feasible to hold Novice classes at Wasson High School this summer.

Prizes - Rick WB7THT: In Rick's absence Floyd KB5FCN sold the tickets for the prizes. All prizes were mystery prizes.

Winners were:

N1FED-Karen-Crimping Kit
KCOTQ-Harley-Volt Meter
N0CMW-Al-Computer Floppy Disk Holder
WA0MNL-Rosie-Meal at Village Inn
W0MOG-Barry-Center Insulator for Dipole
K0ROL-Oak-Tie off line for Wire Antenna
N0DDF-Bud-Colorado Repeater Map

Propram:

The program this month was on paging systems by Gerry Grotkier from US WEST. He spoke of the evolution of paging systems and some of the latest developments in paging systems. At the conclusion he gave a demo of the different pagers that are currently vailable.

The meeting was adjourned at 2130. The next meeting will be 10 May 89.

MINUTES OF THE APRIL BOARD MEETING

submitted by ATNOCMW

The Board meeting was held on 17 Apr 89 at the QTH of Bud NODDF, In attendance were Ron NKOP, Keith NYOT, AI NOCMW, Bud NODDF, Doug NOHJT, and Rick WB7THT (he finally made one). The next Board meeting will be held at the QTH of Doug NOHJT.

After analyzing the events during the Club's support of the Walk for Mankind, it was authorized to expend \$300.00 out of the Swap Fest profits to renovate the Club trailer. This would include the purchase of a lower and antenna system as well as heating for the trailer during inclement weather. As such, all other authorizations have been revoked.

Bud NODDF has been authorized \$30.00 for the purchase of Ameteur Radio signs that will be given to Club members. These are particularly helpful in identifying amateur radio equipped curs when the Club is supporting a public event such as the Walk for Mankind.

The secretary has been asked to confirm with the library that they are listing the new meeting place of the Club.

It was decided that the prize for the Club picnic in August would be a \$200.00 gift certificate.

It was decided that the Club trailer would be moved from its current location to a more central location in the city. It is now at the Industrial Printers location. The Club would like to thank Pete NOLA for all his excellent support in keeping it at his location over the years.

The guest speaker for next month's Club meeting is still being worked on. Details will follow in 0-Beat if available.

The club is still in need of an Education Chairman. If you are interested please contact one of the officers of the Club.

There being no further business, the meeting was adjourned at 20:30 hrs.

MILEY'S RADIO

Jess KOTAA 719 W. 7th St. Florence, Colorado 81226 (719) 784-3040 Hours 9 to 6 Tuesday through Friday — Saturdays 9 to 1 — Evening Hours 7:30 to 10 Tues., Wed., Thurs. (Call Ahead) Closed Saturday 1 PM, Sunday & Monday

Hamfest Schedule:

	3
5/6, 7 5/20 5/28 6/10 7/1 7/8, 9 7/15, 16 7/22, 23 7/30	Sierra Vista, AZ Colorado Springs, CO Gateway parking lot Denver??? Loveland, CO Grand Junction, CO Cheyenne, WY East Glacier, MT Woodland Park, CO RMRL — Jeffco Fairgrounds, Denver
8/12, 13	Amarillo, TX
8/27	Gateway parking lot???
9/2, 3	Alamagordo, NM
9/10	Camp-Out Laramie, WY
9/15, 16	Wichita Falls, TX
9/30	Santa Fe, NM
10/8	Lubbock, TX
11/4, 5	Odessa, TX
12/2, 3	Apache Junction, AZ

Hamfest season is in full swing and the equipment inventory changes weekly. We have lots of good used HF and VHF gear in stock. Call for the rig you want.

> 73's - Jess 5/89

Membership Application PIKES PEAK RADIO AMATEUR ASSOCIATION, INC.

P.O. Box 16521

			Colorado Springs, CO 80935			Date		
Name								
Address								
City			State		Zip _			
Call			License C	lass				
Are You An ARRL Mei	mber?	Yes No	Te	lephone				
☐ Full Member	\$12.00	☐ Family Mem ☐ Age 65 or olde	nbership \$15.0 er, or under 18		Newsletter	Only \$6.00		
dditional Names			Cail		Class			
1			-	_		-		
Associate Member	\$8.00	☐ (Outside	e Teller & El Pas	so Counties,	1			